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STUDIES OF CURRENT CIRCULATION
AT OCEAN WASTE DISPOSAL SITES

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SIGNIFICANT RESULTS

The following significant results were obtained using satellite-aircraft-drogue techniques to study current circulation at the duPont ocean waste disposal site, 40 miles off the Delaware Coast.

1. The circulation processes at the acid waste disposal site are highly event-dominated, with the majority of the water transport occurring during strong northeasters. During one such storm from January 21 to January 31, the drogues first moved to within 20 miles of the shoreline, then moved 80 miles off the coast, reaching speeds up to 3 knots.
2. There is a mean flow to the south alongshore. This appears to be due to the fact that northeasterly winds produce stronger currents than those driven by southeasterly winds and by the thermohaline circulation.
3. During the warm months (May through October), the ocean stratifies with warm water over cold water. A distinct thermocline was observed with expendable bathythermographs during all summer cruises at depths ranging from 10 to 21 meters.
4. During stratified conditions the near-bottom drogues showed very little movement. Surface currents responded to wind conditions resulting in rapid movement of surface drogues on windy days. Mid-depth drogues showed an intermediate behavior, moving more rapidly as wind velocities increased.
5. The duPont waste plume has been observed in NASA's LANDSAT satellite imagery during dump up to 54 hours after dump. Wind, wave and current data are presently being analyzed to determine surface plume movement and dispersion as a function of wind, wave and local currents.